

Signature Annotated Microvascular References

- 1 Smith RM, Kang V, Al-Khudari S, "Vessel selection and free flap monitoring in head and neck microvascular reconstruction," World Journal of Otorhinolaryngology 2015 Feb; 5(1): 5-13. (Transonic Reference # 10250AHR) *"Surgical complications are not uncommon during microvascular free flap reconstructions. They prolong the procedure and can lead to the need for time-consuming surgical re-explorations."*
- 2 Chen WF, Zhao H, "Transit-time ultrasound technology-assisted lymphatic super-microsurgery," J Plast Reconstr Aesthet Surg. 2015 Nov; 68(11): 1627-8. *"The TTUT measurements consistently correlated with the surgeon's observations in all 28 lymphatic vessels — healthy-appearing lymphatic vessels demonstrated flow values higher than those from unhealthy-appearing lymphatic vessels. ...Based on the above findings, we concluded that TTUT holds promise in 1) guiding the lymphatic vessel selection, 2) confirming anastomotic patency, and that 3) the absence of "wash out" may not unequivocally indicate anastomotic occlusion."*
- 3 Selber JC, Garvey PB, Clemens MW, Chang EI, Zhang H, Hanasono MM, "A Prospective Study of Transit Time Flow Volume (TTFV) Measurement for Intraoperative Evaluation and Optimization of Free Flaps," Plast Reconstr Surg. 2013; 131(2): 270-81. (Transonic Reference # 9762AHM) *"...TTFV (Transit-time Flow Volume) provides novel physiologic flap data and identifies flow anastomoses and higher-flow venae comitantes. These data have clinical value in microsurgery and hold the potential to reduce microvascular complications and improve outcomes."*
- 4 Visscher K, Boyd K, Ross DC, Amann J, Temple C, "Refining perforator selection for DIEP breast reconstruction using transit time flow volume measurements," J Reconstr Microsurg. 2010; 26(5): 285-90. (Transonic Reference # CV-9953AHM) *This study evaluated the correlation among computed tomographic angiography (CTA), intraoperative TTFV measurements, and hand-held Doppler signals in identifying perforators in ten consecutive free DIEP breast reconstructions. "Of the 54 perforators identified, TTFV showed arterial flow waveforms in 15 of 16 perforators identified by CTA and in 2 of the remaining 38 vessels. The sensitivity and specificity of TTFV in identifying arterial perforators were 94 and 95%, respectively. In contradiction, hand-held Doppler was misleading in 70% of vessels. TTFV distinguishes arterial from venous waveforms in vessels that appear arterial by hand-held Doppler signals. CTA and TTFV are highly correlated, and the use of TTFV may prevent poor perfusion seen in some DIEP flaps."*
- 5 Herberhold S, Röttker J, Bartmann D, Solbach A, Keiner S, Welz A, Bootz F, Laffers W. "Evaluation and Optimization of Microvascular Arterial Anastomoses by Transit Time Flow Measurement," Laryngorhinootologie 2015 Dec 15. (Transonic Reference # 10035AHM) *This prospective study combined ultrasound imaging and transit time flow measurements to assess anastomotic quality of 15 radial forearm flaps. ..."Results: Mean blood flow immediately after opening the anastomosis and 15 min later were 3.9 and 3.4 ml/min respectively showing no statistically significant difference (p=0.96). ...Conclusion: Transit time flow measurement contributes to the improvement of anastomotic quality and therefore to the overall outcome of radial forearm flaps. The examined measurement method provides objective results and is useful for documentation purposes."*
- 6 Takanari K, Kamei Y, Toriyama K, Yagi S, Torii S, "Differences in blood flow volume and vascular resistance between free flaps: assessment in 58 cases," J Reconstr Microsurg. 2009 Jan; 25(1):39-45. (Transonic Reference # 10313AH) *"We investigated blood flow in the flap by transit-time ultrasound flowmeter in 58 free-flap transfers. Flow volume was compared between flap tissues as vascular resistance in the flap was calculated. Fasciocutaneous and osteocutaneous flaps had relatively low blood flow volume, myocutaneous flaps had more, and intraperitoneal flaps had still higher blood flow volume. These differences were statistically significant. Vascular resistance significantly decreased in the same order of comparison. Our findings will help in selecting the most suitable flaps for reconstructive surgery."*
- 7 Lorenzetti F, Giordano S, Tukiainen E, "Intraoperative hemodynamic evaluation of the latissimus dorsi muscle flap: a prospective study," J Reconstr Microsurg. 2012; 28(4): 273-8. (Transonic Reference # 10035AHM) *Measurements of blood flow were performed intraoperatively in 27 patients using a 2- to 5-mm probe ultrasonic transit-time flowmeter around the dissected vessels. "Registrations were made in the thoracodorsal artery before and after harvesting the flap, after compressing and cutting the motor nerve, and after anastomosis. Mean blood flow of in situ harvested thoracodorsal artery as measured intraoperatively by transit-time flowmeter was 16.6 ± 11 mL/min and was significantly increased after raising the flap to 24.0 ± 22 mL/min (p <0.05); it was 25.6 ± 23 mL/min after compressing the motor nerve and was significantly increased after cutting the motor nerve to 32.5 ± 26 mL/min (p <0.05). A significant increase of blood flow to 28.1 ± 19 mL/min was also detected in the thoracodorsal artery after flap transplantation with end-to-side anastomosis (p <0.05)."*